

FY01 REPLACEMENT FAMILY HOUSING  
DACA85-01-R-0024, AMENDMENT R0005

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minimum of 5 lux over the lower 3 m of building wall and out to a distance of 3 m from the exterior building walls. The Contractor is to demonstrate the lighting levels with point-to-point calculations made using a light loss factor of 0.7. Ballasts for exterior lighting will be rated for a minimum starting temperature of -40 degrees C.

- c) Lighting control will be by photoelectric cell via electrically operated/mechanically held contactors provided with a hand-off-automatic switch. An additional, thermostatic control will override the photocell and turn the fixtures on if the outside air temperature drops to -30 degrees C. The contactors shall be mounted in each building's mechanical/electrical spaces in NEMA 1 enclosures.
- d) Utilidor lighting shall use 100-watt incandescent vaportight fixtures provided within each manhole, and controlled by a local switch at the manhole entry.

#### 2.7.3.2 Interior lighting

- a) Interior: Provide illuminance calculations for living rooms, family rooms, kitchens, dining rooms and bedrooms. Calculations shall be based on actual reflectances, if known or a maximum of 80 percent for the ceiling, 50 percent for the wall and 20% for the floor. The foot-candle levels shall be calculated using light loss factor of 0.7 and the ballast factor of the supplied equipment.
- b) General lighting schedules shall include lamp type, voltage, type of mounting, physical sizes, manufacturer and catalog number.
- c) Control switches for general room lighting shall be located at room entrances. Rooms with more than one door shall have three-or four-way switches. Provide a contactor for any switch that controls lights on more than one branch circuit.
- d) Interior lighting fixtures shall be as indicated in room criteria sheets.
- e) Provide energy-efficient fluorescent fixtures unless otherwise noted, with electronic, energy-saving ballasts. Fixtures using U-tube lamps are not permitted.
- f) Lighting illumination levels shall be at minimum as prescribed in the room criteria sheets and in accordance with the I.E.S. Lighting Handbook. All illumination levels shall be based on maintained lux levels.

#### 2.7.3.3 Power - Special Locations

- a) Service Entrance Equipment

1. **AM #5...**Service entrance equipment shall be rated

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120/208 Volts, 3-phase, 4-wire with a 3-pole main breaker, current transformers and kWh meter base with test by-pass capabilities, using single digital multimeter with selector switches. Each building shall have a master meter and master cut off switch and a meter and cut off switch for each unit. Meters and switches shall be mounted on building exterior in a single bank. ...AM #5

2. Service, feeders and all branch circuits shall be sized in accordance with the NEC, latest edition. The service main distribution panel and individual residential unit loadcenters shall be equipped with Transient Voltage Surge Suppression.
3. Two GFCI receptacle(s) with vapor tight gasket and metal "weatherproof-while-in-use" covers shall be provided at each utilidor manhole.
4. Provide duplex receptacles to comply with the following maximum spacings and branch circuit loading.
  - a) No more than six receptacles shall be connected to a single circuit.
  - b) At each manhole in the utilidor provide a GFCI receptacle at 1m above the floor.
  - c) At minimum of 4 GFCI, convenience receptacles shall be provided in the mechanical/electrical room. Locate 1 near the boiler, 1 in the vicinity of the Electrical MDP, and 2 at the Telecom backboard.
5. Maintain integrity of penetrations intended to be waterproof. Provide flashing at all penetrations of waterproof membranes.
6. Provide NEMA Type 3R enclosures for equipment or devices mounted out-of-doors and NEMA 4 enclosures located in areas where exposed to possible water spray.

#### 2.7.3.4 Grounding

- a) Prepare a grounding electrode system design for each building based on the soil resistivity of the site as determined from the geotechnical survey and provided as an appendix to this document. Provide calculations supporting the design which demonstrate a maximum resistance to ground of the system of 25 ohms. The system will include, as a minimum, a concrete encased (UFER) ground electrode as well as a minimum of 2, 1.6 mm by 2.4 m copper-clad, steel ground rods. All underground grounding connections shall be made using exothermic welds.
- b) Provide an insulated grounding conductor, sized per NEC requirements, in all secondary, distribution, feeder and branch circuit conduits.

#### 2.7.3.6 Telecommunication

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- a) Telephone and Data Systems outlets, cabling and terminations shall be installed from the telephone backboard in the mechanical/electrical rooms to the in-unit distribution cabinet and further to the locations indicated on the room criteria sheets. All equipment, cabling and terminations shall meet a Category 5e rating for Voice and Data. The system shall be in compliance with EIA/TIA criteria with all terminations labeled and identified.
- b) Voice and data cables shall be wired to comply with the requirements of the EIA/TIA 568A jack configuration.
- c) All exterior communications lines shall be routed under new and existing utilidors. See diagram in Appendix 14.

#### 2.7.3.7 Basic Materials and Practices

##### Lighting:

- 1. Fluorescent Ballast. ANSI C82.1, rapid start, high power factor type electronic ballast with less than 10 percent harmonic distortion.
- 2. High Intensity Discharge (HID) Ballast. ANSI C82.4, high-pressure sodium lamp ballast for exterior areas rated for -40 degrees C. Lamps shall be Mogul base type.
- 3. Compact Fluorescent Ballast. Solid state, rapid start, Class "P" high-power factor, "instant on" operation. All T5 and smaller lamp ballasts shall have end-of-life sensing technology.
- 4. Incandescent lamps shall not be used except at entrances and in the utilidor manhole.
- 5. Fluorescent lamps: Deluxe phosphor type with 3500K, 88+ CRI, T8 or 4-Pin Quad tube compact lamps. No U-bent tubes shall be used.
- 6. Provide recessed luminaires using accessories and fire stopping materials to meet requirements for maintaining fire rating of assemblies.

#### 2.7.4 Exterior Electrical Distribution

- a) The exterior electrical service shall be provided by the addition, as required, of poles, cross-arms and hardware to the existing overhead power distribution system; primary cabling to new, pad-mounted distribution transformers; and secondary cabling to utility metering, service disconnect equipment and building main distribution panels (MDPs). Design of the new electrical distribution will be in accordance with the NEC, NESC, Ft. Wainwright Electrical Generation and Distribution Standards, and USDA Rural Utility Service Standards. Prior to final selection of pole and transformer locations coordinate locations with FWW DPW.
- b) The pole hardware will include, as a minimum, primary ACSR conductors, insulators, fused cut-outs, lightning arrestors, splices, conduit and insulated primary

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conductors to new, 3 phase, 3 wire, delta primary 12,470 - 208Y/120V, 3 phase, 4 wire, secondary distribution transformers, plus any additional material and equipment necessary to provide a complete system capable of delivering electrical power from the Ft. Wainwright power distribution system into the residential units.

- c) Primary conductors extend underground to new pad mounted transformers located 3 m to 5 m from the poles and a minimum of 8 m from buildings. The transformer, primary cables, secondary service cables, utility metering, service disconnects and main distribution panels shall be sized to accommodate building loads, calculated in accordance with the NEC requirements, plus 25 percent for future expansion. Voltage drops shall be limited to 3 percent for cables and 3 percent for secondary service cables.
- d) Primary Cables: Underground primary cables shall consist of underground cable in conduit from riser poles to pad mounted transformers. Cables shall conform to the requirements of NEMA WC 8 using ethylene-propylene-rubber (EPR), 15 kV, 133 percent insulation and a nonmetallic jacket with concentric neutral conductors. Cables shall have both conductor and insulation shielding for each phase. Final connection of primary cables will be performed by FWW DPW.
- e) Riser Pole: Provide primary fuse cutouts and surge arresters for protection of the underground cable. Fuse-cutouts shall be loadbreak type. Rigid galvanized conduit shall be provided for physical protection of conductors on riser pole. Clearances shall be in accordance with applicable NESC and RUS requirements. FWW standard cross arms are 3.3 m. Typical poles are 12.2 m. Coordinate pole design with FWW DPW prior to finalization of plans. Use standard FWW design for riser pole conduit standoffs.
- f) Pad Mounted Transformer: Building transformer shall be a pad-mounted input winding configuration of 12,470V delta. Transformer shall be oil filled, through feed, and dead front construction with separate high and low voltage compartments complying with ANSI C57.12.26. Transformer shall be equipped with primary fuse protection, surge arresters, connectors, bushings, load-break switches, adjustable, no-load tap changers, stirrups on primary taps for hotline clamps, concrete pad and ground ring. Distances between transformer and other structures shall be as noted above and in accordance with Military Handbook 1008C requirements. Transformer cabinet shall be capable of being padlocked. Contact FWW DPW to provide padlocks prior to energizing transformer.
- g) Transformer Concrete Pad: Concrete pads may be either pre-fabricated or cast-in-place and shall have minimum 20 MPa compressive strength. Tops of concrete pads shall be level and shall project 100 mm (4 inch) above finished grade and sloped to drain. Edges of concrete pads shall have 20 mm

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- (3/4 inch) chamfer. Where grounding electrode conductors are installed through concrete pads, PVC conduit sleeves shall be installed through the concrete to provide physical protection. To facilitate cable installation and termination, the concrete pad shall be provided with a rectangular hole below the primary and secondary compartment.
- h) Secondary Service: Secondary service shall consist of underground wiring installed in conduit from the pad-mounted transformer to the exterior wall mounted current transformer and service disconnect. Cables shall be single-conductor cable, type XHHW insulations. The service entrance conductors shall not be larger than 500 kcmil. Provide parallel runs of conductors to achieve adequate conductor ampacity requirements.
  - i) Metering equipment shall have a by-pass switch. Meter shall be digital and equipped with communication port for future remote energy monitoring. Transient voltage surge suppression shall be provided at the service equipment. Surge suppressor shall meet the requirements of IEEE C62.41 and be UL listed and labeled as having been tested in accordance with UL 1449.
  - j) Metering equipment and lockable, main service disconnect shall be mounted on the exterior of the building.
  - k) Coordinated Power System Protection analysis shall be submitted as follows:
    - 1. Calculations shall be provided which demonstrate that the equipment and system is constructed to meet the specific requirements for equipment ratings, coordination, and protection. They shall include a fault current analysis, and a protective device coordination study. Capacity and rating of protective devices shall be based on these calculations.
    - 2. Coordination shall include the pole mounted devices, transformer primary and secondary fuses, service disconnects and breakers feeding residential unit loadcenters.
    - 3. The fault current analysis shall begin at the source bus and extend through the transformer, utility metering, and service disconnect to the bus of the MDP.
    - 4. The Contractor shall coordinate with the power plant for fault current availability at the site or use an infinite bus as the input to the calculation.
    - 5. A single line diagram shall be prepared to show the electrical system buses, devices, transformation points, and all sources of fault current. Locations of switches, breakers, and circuit interrupting devices shall be shown on the diagram together with available fault data, and the device interrupting rating.
    - 6. The fault current analysis shall be performed in

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accordance with methods described in IEEE Std 242, and IEEE Std 399. Actual data shall be used in fault calculations. Bus characteristics and transformer impedance shall be those proposed. Balanced three-phase fault, bolted line-to-line fault, and line-to-ground fault current values shall be provided at each voltage transformation point and at each power distribution bus. The maximum values of fault available at each location shall be shown in tabular form on the diagram or in the report.

7. Existing distribution equipment, e.g. poles, wiring, transformers, etc., which will be removed will be returned to FWW DPW.

#### 2.7.5 Interior Distribution

- a) The electrical system shall consist of a Main Distribution Panel located in the electric room for distribution of power to branch circuit loadcenters located in each residential unit. Distribution equipment shall be deadfront construction, equipped with copper busses and bolt-on circuit breakers and sized to accommodate the building load calculated per the NEC plus 25 percent. Minimum of 2, 100-Amp circuit breaker spaces shall be provided for future use. Service entrance equipment shall be fully rated for available fault current.
- b) The service Main Distribution Panel and individual residential unit loadcenters shall be equipped with transient voltage surge suppression from the same manufacturer as the panel or loadcenter manufacturer.
- c) Motor and Circuit Disconnects: These units will be sized for the specific circuit and application in which they are used. Each motor will be provided with a local, horsepower rated switch. Circuit disconnects will be rated for the load served. All disconnects will be of the general-duty type.
- d) Motor Starters: Unless special considerations require selection of other types of starters, starters will be horsepower-rated and will consist of toggle-type manual starters for fractional horsepower motors and full NEMA size units sized for those motors greater than 0.37 kW (1/2 horsepower) in size or of 3-phase configuration. Starters will be equipped with red run pilot light, control transformer, start-stop push-buttons or H-O-A switches as required and connected so control will be shut down when the disconnect switch is opened for any reason.
- e) Loadcenters: Branch circuit loadcenters shall be 208Y/120V, 225A, 3 phase, 4 wire, 42 space, dead-front construction with copper buses and plug-on circuit breakers, and shall have 25 percent minimum spare capacity above the NEC computed loads they serve. They shall be fully rated for the available fault current. Provide a minimum of 5, 20A single pole spare circuit breakers in

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each loadcenter. Tandem breakers are not permitted.

#### 2.7.6 Conduit and Raceway

- a) Raceways shall be specified of the type suited for the applications and locations. Raceway shall not be smaller than 16 mm (1/2") in diameter unless otherwise noted. Conduit shall be installed concealed in all areas except utility spaces.
- b) Conduit Installation Schedule:
  - 1. Underground Installations: Use GRC, IMC, PVC or HDPE conduit.
  - 2. In or Under Slab on Grade: Same as underground; minimum Size: 21 mm (3/4") diameter.
  - 3. Outdoor Locations, Above Grade: Use GRC or IMC conduit.
  - 4. In Slab Above Grade: Use GRC, IMC, or PVC conduit or EMT.
  - 5. Wet and Damp Locations: Use PVC coated rigid steel or PVC coated intermediate metal conduit.
  - 6. Dry Locations Concealed: Use GRC or IMC conduit or EMT.
  - 7. Dry Locations Exposed: Use GRC or IMC conduit or EMT in any room or area accessible to only maintenance and building service staff.
- c) Conductors: Feeder wiring shall be Copper conductors in conduit. Branch circuit wiring may be in conduit or type NM, NMC, NMS, AC or MC cable with insulated green ground wire and THHN or XHHW insulated conductor. All power and control conductors shall be solid or class B or C stranded, annealed copper with type THHN or XHHW 600V insulation. Minimum branch circuit conductor size shall be #12 AWG. XHHW insulation shall be provided for all locations in unheated areas. Aluminum conductors shall be permitted in ACSR cable only.
- d) Devices:
  - 1. Only NEMA 5-15R and 5-20R specification grade, back- and side-wired duplex receptacles shall be specified for this project except for equipment requiring special devices.
  - 2. Ground fault current interrupter (GFCI) type duplex receptacles shall be provided in locations as required by the NEC and provided with metal, weatherproof-while-in-use device plate covers in wet locations.
  - 3. GFCI receptacles in dwelling units may be used to protect other receptacles. Use separate symbols to indicated duplex receptacles protected in this manner.
  - 4. Switches shall be specification grade, back- and side-wired rated 20A, 120volts.
  - 5. Impact resistant nylon plates shall be required for boxes and devices in finished areas. In utility spaces and mechanical/electrical rooms use galvanized steel

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device plates and covers.

6. In mechanical rooms pumps shall be fed from twist-lock receptacles.

- e) Identification: Provide identification for panels, main breakers, and feeder circuits. Provide warning tape for underground installations.

#### 2.7.8 Field Testing

- a) A proposed field test plan including the test safety plan shall be submitted 30 days prior to testing the installed system. The test plan shall consist of complete field test procedures including tests to be performed, test equipment required, and tolerance limits. Field testing shall be performed in the presence of the Contracting Officer. The Contractor shall notify the Contracting Officer 7 days prior to conducting tests. The Contractor shall perform all tests and inspections recommended by the manufacturer unless specifically waived by the Contracting Officer. The Contractor shall maintain a written record of all tests which includes date, test performed, personnel involved, devices tested, serial number and name of test equipment, and test results. Field test reports shall be signed and dated by the Contractor.
- b) Ground Resistance Tests shall be measured using the fall-of-potential method defined in IEEE Std. 81. Ground resistance measurements shall be made before the electrical distribution system is energized and shall be made in normally dry conditions not less than 48 hours after the last rainfall. Resistance measurements of separate grounding electrode systems shall be made before the systems are bonded together below grade.
- c) Medium-Voltage Cable Test shall be in accordance with NEMA WC 8.
- d) Transformer Tests:
  - 1. The following field tests shall be performed on all transformers:
    - a) Insulation resistance test phase-to-ground.
    - b) Secondary voltage test.
    - c) Correct phase sequence.
    - d) Correct operation of tap changer.
    - e) Pass-fail criteria shall be in accordance with transformer manufacturer's specifications and in compliance with ANSI and NEMA standard.
  - 2. Telephone/Data Wiring Tests  
All circuits shall be tested using a test set that meets the Class II accuracy requirements of EIA/TIA TSB 67. Testing shall use the Basic Link Test procedure of EIA/TIA TSB 67.
- e) Cable Television: Cable shall be type RG-6 quad shield coaxial cable individually homerun between outlets and



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equipment cabinets. Homeruns from unit cabinet to utility room shall be in metal raceway. Amplifiers and attenuators shall be provided as needed.

#### 2.7.13 Handicap Accessibility

Electrical utilization devices and visual indicating devices shall be located to comply with ADA requirements.

#### 2.7.14 Betterments

The following Betterments referenced in paragraph 1.1 GENERAL REQUIREMENTS shall conform to the performance criteria above:

Additional data wiring to Family Room, bedrooms.

#### 2.7.15 Design/Build Contractor Innovations

All innovations shall conform to the performance criteria above. Care must be exercised to avoid stated prohibited items and to follow check-list criteria for preferred systems.

#### 2.7.16 Prohibited Items

Prohibited items, which do not meet the minimum requirements listed, are not allowed for the electrical systems for this project. The following specific systems are prohibited for this project:

1. Aluminum feeder and branch circuit wiring.
2. U-tube fluorescent lamps.

### 2.8 LANDSCAPE DESIGN

#### 2.8.1 References

- a) Fort Wainwright Landscape Guidelines.
- b) Consumer Product Safety Commission- CPSC - Consumer Product Safety Commission, Bethesda, Maryland; Handbook for Public Playground Safety (Publication No. 325).
- c) ASTM - American Society for Testing and Materials. (1916 Race Street, Philadelphia, PA 19103); ASTM, F 1487-95 Standard consumer Safety Performance for Playground Equipment for Public Use; ASTM, F 1292-95 Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.
- d) "American Standard for Nursery Stock (ANSI). Z60.1-1996" (American Association of Nurserymen [AAN] 1250 I Street, NW, Suite 500, Washington, D.C. 20005, 1990).
- e) American Society for Testing and Materials (ASTM). (1916 Race Street, Philadelphia, PA 19103). Included, but not limited to: D-422 - Method for Particle-Size Analysis of Soils; D2974 - Method for Moisture, Ash, and Organic Matter

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of Peat and Other Organic Materials.

#### 2.8.2 Minimum Requirements

- a) The Design-Build Contractor shall use a Landscape Architect licensed in the State of Alaska.
- b) Work shall include delineating temporary fencing for trees to be saved, location for replacement trees and shrubs or any new tree and shrub beds, and determination of topsoil and seeding limits to assure all disturbed areas are revegetated.
- c) Work shall include complete landscape plans and details including planting plans, plant schedule showing common name, botanical name, size, quantity and typical spacing of plant materials. Detail sheet shall include planting detail, temporary and permanent fence detail, staking detail if staking is required and any site related details.
- d) All playgrounds must be altered or designed using CPSC and ASTM guidelines. The playground designer must be a Landscape Architect certified as a Playground Safety Inspector by the National Park and Recreation Association.

#### 2.8.3 Scope and Objectives

- a) Landscaping shall consist of developing and implementing techniques to save existing vegetation; topsoil and seed of all disrupted areas; design of new landscaping including installation of trees, shrubs, groundcovers as a betterment.
- b) Design shall meet local requirements for plant growth and establishment recognizing climatic limitations including snow accumulation and wind.
- c) Alterations including relocation of existing playground equipment shall include redesign of equipment and play area to increase play value. Existing recreation areas shall be maintained in existing quantities and may be moved so long as optimal and safe access is maintained. Play areas must be centrally located to housing units.

#### 2.8.4 Landscape Design and Installation

- a) Landscaping shall be in accordance with the Installation Design Guide, 6th Infantry Division Light. Landscaping shall include analysis of existing vegetation and determination of techniques to protect and save existing vegetation where existing vegetation will provide value to the new units proposed for the project. Existing landscaping that could hinder site use by residents or that will suffer severe, adverse, or irreparable damage during demolition and construction shall not be saved.
- b) All areas disturbed by construction shall be seeded and

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where necessary erosion control methods shall be used to control wind or water related erosion. Work shall consist of placing 100 mm (4 inches) topsoil on all disturbed areas and seeding areas with approved seed mix.

1. Grass Seed:

- a) Seeds shall be Kentucky Bluegrass, a mixture of 45 percent Red Fescue (arctared), and 10% Annual Rye; OR 50 percent Bluegrass and 50 percent Red Fescue as the annual rye dies off the first winter.
- b) Seeding shall be done prior to August 1 or as dormant seeding after first frost.

2. Topsoil:

- a) Original fertile, friable surface soil typical of area, capable of supporting plant growth, reasonably free of subsoil, clay, weeds, roots, sticks, stubble, and stones larger than 3/4 inch. Topsoil furnished shall consist of a natural friable surface soil without admixtures of undesirable subsoil, refuse, or foreign materials.
- b) Topsoil Composition:

- 1. Organic Materials not less than 40 percent nor more than 60 percent by volume. (15-20% by weight)
- 2. Silt not less than 20 percent by volume (50-60 percent by weight)
- 3. Sand not less than 20 percent nor more than 30% by volume. (20-30 percent by weight).

3. Fertilizer:

The application rate of the fertilizer and limestone per 1,000 square feet of ground area of topsoil shall be determined by the Owner, based on soil analysis test so that the total natural and applied chemical constituents are as follows:

Nitrogen	21-35 PPM
Phosphoric Acid	11-20 PPM
Potassium	76-150 PPM
Limestone	Sufficient to attain a pH of 6.0-7.0

- c) Trees, Shrubs and Groundcovers shall be designed and installed to enhance proposed housing units and meet requirements of the Installation Design Guide as a betterment. All plants shall be sound, healthy, vigorous and free of disease, injury, abrasions, insects and scale; all trees and shrubs shall be well branched and have vigorous root systems. All plant materials used shall be true to name and size in conformity with the standards set forth in ANSI Z60.1.

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1. All trees, shrubs, and groundcovers shall be designed and planted in planting beds that are excavated to a depth no less than 600 mm. Planting beds shall be mulched with a wood bark mulch that creates a mat that retains moisture, holds soil and prevents the growth of weeds. Wood bark mulch shall be primarily of shredded bark of no greater than 100 mm with no more than thirty percent chipped wood or sawdust.
- d) Maintenance of all landscape areas shall include protection and maintenance of seeded areas until a uniform stand of grass is established however no earlier than one full growing season beyond seeding time. Maintenance of lawn areas shall include mowing on a weekly basis or more frequently to keep grass at no higher than 80 mm at any given time. Water and fertilizer shall be applied on a regular basis to create a green, thriving vegetative mat with a well-established root system.
- e) Maintenance of all other landscape areas shall include water, fertilizer, weeding and pruning of plants to maintain their natural character and health. Planting beds shall be maintained in a weed free condition and shall be replenished with bark mulch to maintain a constant depth of 80 mm.

#### 2.8.5 Betterments

- a) Landscaping beyond what was saved shall be considered a betterment and shall meet the requirements of this section.
- b) Provide trees, shrubs and groundcovers to enhance the street appearance and value of each unit. Focus landscape areas at building fronts and along streets.
- c) Landscaping in masses or groupings is preferable to the placement of single trees spread throughout the project.
- d) The addition of landscaping as a betterment shall not substantially increase maintenance requirements for the Owner.

#### 2.8.6 Design/Build Contractor Innovations

Saving existing vegetation through building location, temporary protective fencing and/or careful construction practices will improve unit appearance and value.

#### 2.8.7 Prohibited Items

- a) Do not place trees and shrubs within fenced areas of units.
- b) Trees and shrubs shall not be of lower quality than as specified in the American Standard for Nursery Stock (ANSI).

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**AREA:**

**CGO DWELLING UNIT – 3 Bedroom Type**

A. Room Name:

**3-BEDROOM UNIT REQUIREMENTS**

B. Relationship to Other Areas:

Fire resistance of party walls per  
Mil Handbook 1008C, NFPA 101 and UBC:  
1-Hour fire rated partition between units  
2-Hour area separation wall separating pairs of  
units

C. Spatial Requirements

1) Area:

Per TI 801-02 Technical Instructions  
for Family Housing, Table 5-1  
125 sq. meters (1,350 sq. ft.) net, max.  
+ 27.87 sq. meters (300 sq. ft) Arctic Bonus Area  
\*does not include Sub-Activity areas  
\*does not include access clearances required for  
ADA-adaptable units

2) Minimum Ceiling Height:

See room requirements

3) Flexibility/Multiple Use Needs

See room requirements; ADA-  
adaptable unit plans must facilitate retrofit for  
special needs tenants

4) Sub-Activity Areas:

Utility and laundry rooms, bulk storage,  
mechanical space, stairs/landings, arctic  
entry, attic/basement, patio, garage, increases  
for accessibility standards

5) Sub-Activity Relationships:

See room requirements

D. Environmental Characteristics

1) Acoustical:

Sound transmission standards between  
dwelling units summarized as follows (see Chapter  
5 and Table 5-2 in TI 801-02):  
FIIC (Field Impact Isolation Class)  
Habitable areas – 65, Habitable wet areas – 57 FSTC  
(Field Sound Transmission Class)  
Party walls – 52, Habitable areas – 52, Habitable wet  
areas – 52

2) Visual:

Per Ft. Wainwright Installation Design Guide  
and Design Criteria

3) Aesthetic:

Per Ft. Wainwright Installation Design  
Guide and Design Criteria

E. Building Systems

1) Electrical:

208Y/120V, 3 phase, 4 wire, 60 Hz

2) Lighting:

See room requirements

3) Telecommunication:

Install cabinet containing panels and  
modules to terminate, patch, distribute to in unit  
devices and homerun to building utility room for  
connection to base telecom/data and cable TV.

4) Plumbing:

Exterior hose bibs, front and back of  
Unit.

5) Heating:

Hydronic Heat in all rooms with  
exterior walls.

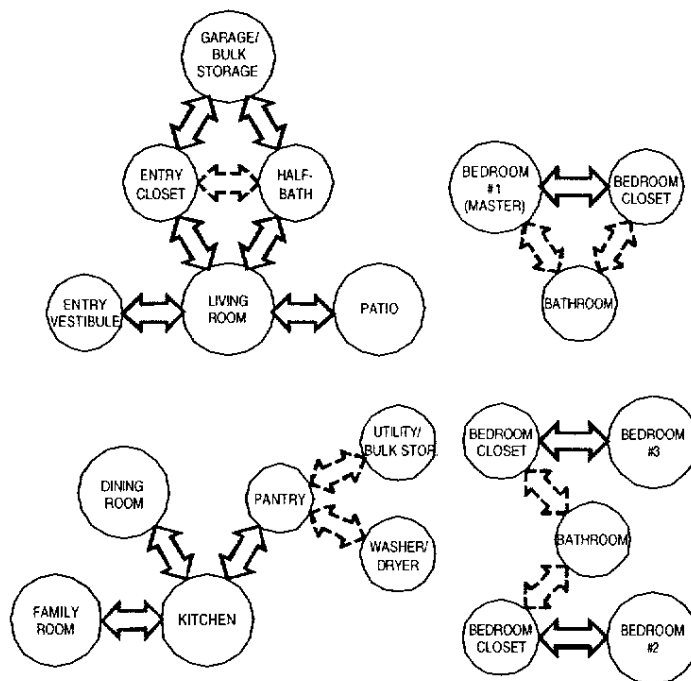
6) Ventilation:

Operable Windows for Ventilation

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- F. Storage: See room requirements
- G. Display: See room requirements
- H. Furniture & Equipment: See room requirements
- I. Special Equipment: See room requirements
- J. Surfaces/Finishes  
 1) Floor: See room requirements  
 2) Base: See room requirements  
 3) Wainscot: See room requirements  
 4) Walls: See room requirements  
 5) Ceiling: See room requirements  
 6) Window Treatment: See room requirements
- K. Parking Requirement: 1-Space in Garage, 2 Spaces outside of Unit w/ head-bolt heaters
- L. Bubble Diagram:



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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: **Living Room**
- B. Relationship to Other Areas: **Immediate access to Entry, public spaces**
- C. Spatial Requirements
- 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
14 sq. meters (150 sq. ft.) net, min.\*  
3550 mm (11'-8") length, minimum  
3550 mm (11'-8") width, minimum  
\*exclusive of circulation; add 1000mm (3'-3") to the minimum dimension**
  - 2) Minimum Ceiling Height: **2300 mm (7'-6")**
- D. Environmental Characteristics
- 1) Acoustical: **Per Chapter 5 and Table 5-2 in TI 801-02:  
FILC (Field Impact Isolation Class) - 65  
FSTC (Field Sound Transmission Class) - 52**
  - 2) Visual: **2-story space or high ceiling area**
  - 3) Aesthetic: **Feature window area, view to entry**
- E. Building Systems
- 1) Electrical: **Switched receptacle adjacent to couch; Cable TV outlet**
  - 2) Lighting: **Separately switched lamp & ceiling fan combo;  
Minimum illuminance 200 lux**
  - 3) Telecommunication/Data: **Quad phone/data outlet**
  - 4) Plumbing: **None**
  - 5) Heating: **Hydronic Terminal Units or Radiant Floor**
  - 6) Ventilation: **Ceiling fan, operable windows**
- F. Storage: **None**
- G. Display: **None**
- H. Furniture & Equipment: **None**
- I. Special Equipment: **None**
- J. Surfaces/Finishes
- 1) Floor: **Carpet over pad**
  - 2) Base: **Wood**
  - 3) Wainscot: **None**
  - 4) Walls: **Painted gypsum wallboard**
  - 5) Ceiling: **Painted gypsum wallboard**
  - 6) Window Treatment: **Horizontal blinds**
- K. Other: **None**

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: Dining Room
- B. Relationship to Other Areas: Direct access to Kitchen
- C. Spatial Requirements
- 1) Area: Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
8.4 sq. meters (90 sq. ft.) net, min.\*  
2900 mm (9'-6") length, minimum  
2900 mm (9'-6") width, minimum  
\*exclusive of circulation; add 1000mm (3'-3") to the minimum dimension
  - 2) Minimum Ceiling Height: 2300 mm (7'-6")
- D. Environmental Characteristics
- 1) Acoustical: Where adjacent to neighboring unit, Per Chapter 5 And Table 5-2 in TI 801-02:  
FIIC (Field Impact Isolation Class) - 65  
FSTC (Field Sound Transmission Class) - 52
  - 2) Visual: None
  - 3) Aesthetic: None
- E. Building Systems
- 1) Electrical: Receptacles per NEC
  - 2) Lighting: Overhead Fixture, minimum illuminance 200 lux
  - 3) Telecommunication: None
  - 4) Plumbing: None
  - 5) Heating: Hydronic Terminal Units or Radiant Floor
  - 6) Ventilation: Operable windows
- F. Storage: None
- G. Display: None
- H. Furniture & Equipment: None
- I. Special Equipment: None
- J. Surfaces/Finishes
- 1) Floor: Resilient sheet flooring
  - 2) Base: Wood
  - 3) Wainscot: None
  - 4) Walls: Painted gypsum wallboard
  - 5) Ceiling: Painted gypsum wallboard
  - 6) Window Treatment: Horizontal blinds
- K. Other: None



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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: Family Room
- B. Relationship to Other Areas: Adjacent to and Contiguous with Kitchen
- C. Spatial Requirements
- 1) Area: Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
8.4 sq. meters (90 sq. ft.) net, min.\*  
2900 mm (9'-6") length, minimum  
2900 mm (9'-6") width, minimum  
\*exclusive of circulation; add 1000mm (3'-3") to the minimum dimension
  - 2) Minimum Ceiling Height: 2300 mm (7'-6")
  - 3) Flexibility/Multiple Use Needs: None
  - 4) Sub-Activity Areas: Auxiliary Dining Area (if not part of Kitchen space)
  - 5) Sub-Activity Relationships: Direct access to Kitchen
- D. Environmental Characteristics
- 1) Acoustical: Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02:  
FIIC (Field Impact Isolation Class) - 65  
FSTC (Field Sound Transmission Class) - 52
- E. Building Systems
- 1) Electrical: Switched receptacle adjacent to couch, TV outlet
  - 2) Lighting: Combo ceiling fan/light fixture on separate switches;  
Minimum illuminance 200 lux
  - 3) Telecommunication: Quad Phone/Data outlet
  - 4) Plumbing: None
  - 5) Heating: Hydronic Terminal Units or Radiant Floor
  - 6) Ventilation: Operable windows, ceiling fan
- F. Storage: None
- G. Display: None
- H. Furniture & Equipment: Space for Table (if not provided as part of Kitchen)
- I. Special Equipment: None
- J. Surfaces/Finishes
- 1) Floor: Resilient sheet flooring if auxiliary eating area, carpet/pad otherwise
  - 2) Base: Wood
  - 3) Wainscot: None
  - 4) Walls: Painted gypsum wallboard
  - 5) Ceiling: Painted gypsum wallboard
  - 6) Window Treatment: Horizontal blinds
- K. Other: None

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: **Kitchen**
- B. Relationship to Other Areas: **Adjacent to and Contiguous with Family Room, Dining Room**
- C. Spatial Requirements
- 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-3**  
**6.0 sq. meters (64 sq. ft.) net, minimum\***  
**2450 mm (8'-0") length, minimum**  
**2450 mm (8'-0") width, minimum**  
**\*1200 mm (4'-0") min. clearance required in front of, and between, cabinets**  
**\*adaptable units must anticipate UFAS required clearances**
- 2) Minimum Ceiling Height: **2300 mm (7'-6")**
- 3) Sub-Activity Areas: **Auxiliary Dining Area (if not part of Family Room), change above dimensions to, and measure from face of cabinets to walls:**  
**6.7 sq. meters (8 sq. ft.) net, minimum**  
**2600 mm (8'-6") length, minimum**  
**2600 mm (8'-6") width, minimum**
- 5) Sub-Activity Relationships: **Direct access to Dining Room, Garage**
- D. Environmental Characteristics
- 1) Acoustical: **Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02: FIIC (Field Impact Isolation Class) - 57; FSTC (Field Sound Transmission Class) - 52**
- 2) Visual: **Natural lighting**
- 3) Aesthetic: **Cleanable surfaces**
- E. Building Systems
- 1) Electrical: **Receptacles per NEC**
- 2) Lighting: **Minimum illuminance 300 lux in addition to task lighting shown below; Undercabinet Lighting on 2 Switches - 750 lux; Sink lighting - 750 lux; Range Light in hood - 750 lux**
- 3) Telecommunication: **Wall mount telephone receptacle**
- 4) Plumbing: **Double compartment stainless steel sink with single lever faucet, spray hose, garbage disposal, dishwasher, Water to refrigerator icemaker**
- 5) Heating: **Hydronic Terminal Units or Radiant Floor**
- 6) Ventilation: **Provide ducted range hood with fan and light; operable windows**
- F. Storage: **Per TI 801-02 Table 5-5**  
**Wall Cabinet – 2.3 sq. meters (24 sq. ft.) total shelf area**  
**Base Cabinet – 3.0 sq. meters (32 sq. ft.) total shelf area**  
**Pantry – not required by AEI, but desired by Housing**  
**Drawers – 1.3 sq. meters (14 sq. ft.) flat area**  
**Countertop – 1.1 sq. meters (12 sq. ft.) flat area**  
**Counter space for Microwave**  
**Refrigerator/Freezer – 0.5 sq. meters (6 sq. ft.)\***  
**900 mm (3'-0") length, min., 600 mm (2'-0") width, min.**

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**\*Ref./Freezer area is not part of totals above**

- G. Display: **None**
- H. Furniture & Equipment: **Dishwasher, CFE (with water booster heater to 60 deg. C)  
Garbage Disposal, CFE  
Refrigerator/Freezer, GFE  
AM #5...Range and Ventilation Hood, CFE..AM #5  
Microwave Oven, by Tenant**
- I. Special Equipment: **None**
- J. Surfaces/Finishes
- 1) Floor: **Resilient sheet flooring**
  - 2) Base: **Wood with ¼-round moulding**
  - 3) Wainscot: **None**
  - 4) Walls: **Painted gypsum wallboard, tile behind wet areas**
  - 5) Ceiling: **Painted gypsum wallboard**
  - 6) Window Treatment: **Horizontal blinds**
- K. Other: **Housing Office preferred configuration is "breakfast bar" auxiliary eating area**

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: Washer/Dryer
- B. Relationship to Other Areas: May be part of Utility Room and/or Bulk Storage
- C. Spatial Requirements
- 1) Area: Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
1.6 sq. meters (54 sq. ft.) net, min., 2.8 sq. meters (30 sq. ft) max.\*  
1800 (6'-0") length, minimum  
900 (3'-0") width, minimum  
\*exclusive of circulation if shared space
  - 2) Minimum Ceiling Height: 2300 mm (7'-6") minimum
  - 3) Flexibility/Multiple Use Needs: Utility Area, Bulk Storage (optional)
- D. Environmental Characteristics
- 1) Acoustical: Where adjacent to neighboring unit, Per Chapter 5 And Table 5-2 in TI 801-02:  
FIIC (Field Impact Isolation Class) - 57  
FSTC (Field Sound Transmission Class) - 52
- E. Building Systems
- 1) Electrical: Special receptacles as required for laundry equipment; convenience receptacles
  - 2) Lighting: Ceiling mounted lighting fixture, Compact Fluorescent, High CRI
  - 3) Telecommunication: None
  - 4) Plumbing: Single lever hot/cold water supply hose valves in recessed box, floor drain
  - 5) Heating: None
  - 6) Ventilation: Dryer Exhaust duct to exterior wall hood directed away from eaves or overhangs
- F. Storage: Shelving or cabinet above appliances
- G. Display: None
- H. Furniture & Equipment: Washer and Dryer, GFE
- I. Special Equipment: None
- J. Surfaces/Finishes
- 1) Floor: Resilient sheet flooring
  - 2) Base: Wood or rubber base
  - 3) Wainscot: None
  - 4) Walls: Painted moisture-resistant gypsum wallboard
  - 5) Ceiling: Painted gypsum wallboard
  - 6) Window Treatment: None
- K. Other: None

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: **Bedroom #1 – (Master)**
- B. Relationship to Other Areas: **Direct access to Bathroom, Quiet Area**
- C. Spatial Requirements
- 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
14.0 sq. meters (150 sq. ft.) net, minimum  
3550 (11'-8") length, minimum  
3550 (11'-8") width, minimum**
  - 2) Minimum Ceiling Height: **2300 mm (7'-6")**
- D. Environmental Characteristics
- 1) Acoustical: **Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02:  
FIIC (Field Impact Isolation Class) - 65  
FSTC (Field Sound Transmission Class) - 52**
- E. Building Systems
- 1) Electrical: **Switched (3-way) receptacle adjacent to bed;  
Compact Fluorescent reading lights adjacent to bed;  
cable TV outlet opposite bed**
  - 2) Lighting: **Combo ceiling fan/light fixture on separate switches;**
  - 3) Data/Telecommunication: **Minimum illuminance 200 lux.  
Quad Telecom/data outlets, (1) adjacent to bed, (1) opposite bed**
  - 4) Plumbing: **None**
  - 5) Heating: **Hydronic terminal units or radiant floor**
  - 6) Ventilation: **Operable windows, ceiling fan**
- F. Storage: **None**
- G. Display: **None**
- H. Furniture & Equipment: **None**
- I. Special Equipment: **None**
- J. Surfaces/Finishes
- 1) Floor: **Carpet with Pad**
  - 2) Base: **Wood**
  - 3) Wainscot: **None**
  - 4) Walls: **Painted gypsum wallboard**
  - 5) Ceiling: **Painted gypsum wallboard**
  - 6) Window Treatment: **Horizontal blinds**
- K. Other: **None**

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: **Bedroom #1 (Master) Closet**
- B. Relationship to Other Areas: **Direct Access to Bedroom #1, walk-in configuration preferred**
- C. Spatial Requirements  
 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-6  
1800 mm (6'-0") width, minimum**  
 2) Minimum Ceiling Height: **2300 mm (7'-6")**
- D. Environmental Characteristics  
 1) Acoustical: **None**  
 2) Visual: **None**  
 3) Aesthetic: **None**
- E. Building Systems  
 1) Electrical: **None**  
 2) Lighting: **Switched closet compact fluorescent fixture, high CRI**  
 3) Telecommunication: **None**  
 4) Plumbing: **None**  
 5) Heating: **None**  
 6) Ventilation: **None**
- F. Storage: **305 mm (12") minimum deep Shelf with Clothes Rod, intermediate supports to support required loads**
- G. Display: **None**
- H. Furniture & Equipment: **None**
- I. Special Equipment: **None**
- J. Surfaces/Finishes  
 1) Floor: **Carpet**  
 2) Base: **Wood**  
 3) Wainscot: **None**  
 4) Walls: **Painted gypsum wallboard**  
 5) Ceiling: **Painted gypsum wallboard**  
 6) Window Treatment: **None**
- K. Other: **None**

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: **Bedroom #2**
- B. Relationship to Other Areas: **Direct access to Quiet Area**
- C. Spatial Requirements
- 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
11.1 sq. meters (120 sq. ft.) net, minimum  
3000 (10'-0") length, minimum  
3000 (10'-0") width, minimum**
  - 2) Minimum Ceiling Height: **2300 mm (7'-6")**
- D. Environmental Characteristics
- 1) Acoustical: **Where adjacent to neighboring unit, Per Chapter 5 And Table 5-2 in TI 801-02:  
FIIC (Field Impact Isolation Class) - 65  
FSTC (Field Sound Transmission Class) - 52**
  - 2) Visual: **None**
  - 3) Aesthetic: **None**
- E. Building Systems
- 1) Electrical: **Switched (3-way) receptacle adjacent to bed;  
compact fluorescent reading light adjacent to bed;  
cable TV outlet opposite bed**
  - 2) Lighting: **Combo ceiling fan/light fixture on separate switches;  
Minimum illuminance 200 lux.**
  - 3) Data/Telecommunication: **Telecomm/data outlets, (1) adjacent to bed,  
(1) opposite bed**
  - 4) Plumbing: **None**
  - 5) Heating: **Hydronic terminal units or radiant floor**
  - 6) Ventilation: **Operable windows, ceiling fan**
- F. Storage: **None**
- G. Display: **None**
- H. Furniture & Equipment: **None**
- I. Special Equipment: **None**
- J. Surfaces/Finishes
- 1) Floor: **Carpet with Pad**
  - 2) Base: **Wood**
  - 3) Wainscot: **None**
  - 4) Walls: **Painted gypsum wallboard**
  - 5) Ceiling: **Painted gypsum wallboard**
  - 6) Window Treatment: **Horizontal blinds**
- K. Other: **None**

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- |    |                               |  |
|----|-------------------------------|--|
| A. | Room Name:                    | <b>Bedroom #2 Closet</b>   |
| B. | Relationship to Other Areas:  | <b>Direct Access to Bedroom #2</b>   |
| C. | Spatial Requirements          |  |
|    | 1) Area:                      | <b>Per TI 801-02 Technical Instructions for Family Housing, Table 5-6<br/>1200 mm (4'-0") width, minimum<br/>2300 mm (7'-6")</b> |
|    | 2) Minimum Ceiling Height:    | <b>2300 mm (7'-6")</b>   |
| D. | Environmental Characteristics |  |
|    | 1) Acoustical:                | <b>None</b>  |
|    | 2) Visual:                    | <b>None</b>  |
|    | 3) Aesthetic:                 | <b>None</b>  |
| E. | Building Systems              |  |
|    | 1) Electrical:                | <b>None</b>  |
|    | 2) Lighting:                  | <b>Switched closet compact fluorescent fixture, high CRI</b>   |
|    | 3) Data/Telecommunication:    | <b>None</b>  |
|    | 4) Plumbing:                  | <b>None</b>  |
|    | 5) Heating:                   | <b>None</b>  |
|    | 6) Ventilation:               | <b>None</b>  |
| F. | Storage:                      | <b>305 mm (12") minimum deep Shelf with Clothes Rod, intermediate supports to support required loads</b>                         |
| G. | Display:                      | <b>None</b>  |
| H. | Furniture & Equipment:        | <b>None</b>  |
| I. | Special Equipment:            | <b>None</b>  |
| J. | Surfaces/Finishes             |  |
|    | 1) Floor:                     | <b>Carpet</b>  |
|    | 2) Base:                      | <b>Wood</b>  |
|    | 3) Wainscot:                  | <b>None</b>  |
|    | 4) Walls:                     | <b>Painted gypsum wallboard</b>  |
|    | 5) Ceiling:                   | <b>Painted gypsum wallboard</b>  |
|    | 6) Window Treatment:          | <b>None</b>  |
| K. | Other:                        | <b>None</b>  |



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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: **Bedroom #3**
- B. Relationship to Other Areas: **Direct access to Quiet Area**
- C. Spatial Requirements
- 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
9.0 sq. meters (100 sq. ft.) net, minimum  
3000 (10'-0") length, minimum  
3000 (10'-0") width, minimum**
  - 2) Minimum Ceiling Height: **2300 mm (7'-6")**
- D. Environmental Characteristics
- 1) Acoustical: **Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02:  
FIIC (Field Impact Isolation Class) - 65  
FSTC (Field Sound Transmission Class) - 52**
  - 2) Visual: **None**
  - 3) Aesthetic: **None**
- E. Building Systems
- 1) Electrical: **Switched (3-way) receptacle adjacent to bed;  
compact fluorescent reading light adjacent to bed; cable  
TV outlet opposite bed**
  - 2) Lighting: **Combo ceiling fan/light fixture on separate switches;  
Minimum illuminance 200 lux.**
  - 3) Data/ Telecommunication: **Telecomm/data outlets, (1) adjacent to bed, (1)  
opposite bed**
  - 4) Plumbing: **None**
  - 5) Heating: **Hydronic terminal units or radiant floor**
  - 6) Ventilation: **Operable windows, ceiling fan**
- F. Storage: **None**
- G. Display: **None**
- H. Furniture & Equipment: **None**
- I. Special Equipment: **None**
- J. Surfaces/Finishes
- 1) Floor: **Carpet with Pad**
  - 2) Base: **Wood**
  - 3) Wainscot: **None**
  - 4) Walls: **Painted gypsum wallboard**
  - 5) Ceiling: **Painted gypsum wallboard**
  - 6) Window Treatment: **Horizontal blinds**
- K. Other: **None**

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- |    |                               |  |
|----|-------------------------------|--|
| A. | Room Name:                    | <b>Bedroom #3 Closet</b>   |
| B. | Relationship to Other Areas:  | <b>Direct Access to Bedroom #3</b>   |
| C. | Spatial Requirements          |  |
|    | 1) Area:                      | <b>Per TI 801-02 Technical Instructions for Family Housing, Table 5-6<br/>1200 mm (4'-0") width, minimum<br/>2300 mm (7'-6")</b> |
|    | 2) Minimum Ceiling Height:    | <b>2300 mm (7'-6")</b>   |
| D. | Environmental Characteristics |  |
|    | 1) Acoustical:                | <b>None</b>  |
|    | 2) Visual:                    | <b>None</b>  |
|    | 3) Aesthetic:                 | <b>None</b>  |
| E. | Building Systems              |  |
|    | 1) Electrical:                | <b>None</b>  |
|    | 2) Lighting:                  | <b>Compact fluorescent ceiling fixture, High CRI</b>   |
|    | 3) Data/Telecommunication:    | <b>None</b>  |
|    | 4) Plumbing:                  | <b>None</b>  |
|    | 5) Heating:                   | <b>None</b>  |
|    | 6) Ventilation:               | <b>None</b>  |
| F. | Storage:                      | <b>305 mm (12") minimum deep Shelf with Clothes Rod, intermediate supports to support required loads</b>                         |
| G. | Display:                      | <b>None</b>  |
| H. | Furniture & Equipment:        | <b>None</b>  |
| I. | Special Equipment:            | <b>None</b>  |
| J. | Surfaces/Finishes             |  |
|    | 1) Floor:                     | <b>Carpet</b>  |
|    | 2) Base:                      | <b>Wood</b>  |
|    | 3) Wainscot:                  | <b>None</b>  |
|    | 4) Walls:                     | <b>Painted gypsum wallboard</b>  |
|    | 5) Ceiling:                   | <b>Painted gypsum wallboard</b>  |
|    | 6) Window Treatment:          | <b>None</b>  |
| K. | Other:                        | <b>None</b>  |

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: **Half-Bath**
- B. Relationship to Other Areas: **Direct access to Public Area**
- C. Spatial Requirements  
 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-3; 900 (3'-0") width lavatory, minimum (adaptable units must anticipate UFAS required clearances)**  
 2) Minimum Ceiling Height: **2300 mm (7'-6")**
- D. Environmental Characteristics  
 1) Acoustical: **Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02:  
FIIC (Field Impact Isolation Class) - 57  
FSTC (Field Sound Transmission Class) - 52**  
 2) Visual: **None**  
 3) Aesthetic: **None**
- E. Building Systems  
 1) Electrical: **GFCI receptacles near lavatory**  
 2) Lighting: **Minimum 600mm fixture over mirror, incandescent  
 or High CRI Fluorescent; minimum 400mm vertical fixture on both sides of mirror; compact fluorescent ceiling light, minimum illuminance – 300 lux**  
 3) Data/Telecommunication: **None**  
 4) Plumbing: **(1) water closet, (1) lavatory**  
 5) Heating: **Hydronic Terminal Units or Radiant Floor**  
 6) Ventilation: **Exhaust ventilation, ducted to exterior wall**
- F. Storage: **Medicine cabinet, surface mounted; size and mount to accommodate full range of resident heights**
- G. Display: **Lavatory mounted in 610 mm (2'-0") wide min. countertop with 100 mm (4") minimum backsplash**
- H. Furniture & Equipment: **Toilet tissue holder, Robe hook, Towel bar, 750 mm (30") minimum, total**
- I. Special Equipment: **Concealed solid wood backing for future grab bars at water closet**
- J. Surfaces/Finishes  
 1) Floor: **Resilient sheet flooring**  
 2) Base: **Rubber**  
 3) Wainscot: **None**  
 4) Walls: **Painted moisture resistant gypsum wallboard**  
 5) Ceiling: **Painted gypsum wallboard**  
 6) Window Treatment: **Obscure glass (if applicable)**
- K. Other: **None**

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: Full-Bath (2 required)
- B. Relationship to Other Areas: 1 - Direct accessibility to Bedroom #1 (Master), 1 - Direct accessibility to Hallway
- C. Spatial Requirements
- 1) Area: Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
900 (3'-0") width, minimum\*  
\*adaptable units must anticipate UFAS required clearances
  - 2) Minimum Ceiling Height: 2300 mm (7'-6")
  - 3) Flexibility/Multiple Use Needs: Compartmentalized bathroom to maximize privacy and family use
- D. Environmental Characteristics
- 1) Acoustical: Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02: FIIIC (Field Impact Isolation Class) - 57; FSTC (Field Sound Transmission Class) - 52
  - 2) Visual: None
  - 3) Aesthetic: None
- E. Building Systems
- 1) Electrical: GFCI receptacles near lavatory
  - 2) Lighting: Minimum 600mm fixture over mirror, incandescent or High CRI Fluorescent; minimum 400mm vertical fixture on both sides of mirror; compact fluorescent ceiling light, minimum illuminance – 300 lux
  - 3) Data/Telecommunication: None
  - 4) Plumbing: (1) water closet, (1) lavatory, (1) shower/tub combination with hand-held shower unit
  - 5) Heating: Hydronic Terminal Units or Radiant Floor
  - 6) Ventilation: Exhaust fan, ducted to an exterior wall
- F. Storage: Medicine Cabinet, size and mount to accommodate full range of resident heights
- G. Display: Lavatory mounted in 610 mm (2'-0") wide min. countertop  
With 100 mm (4") minimum backsplash
- H. Furniture & Equipment: Toilet tissue holder, Soap dish (if integral w/ shower unit), Robe hook; Shower curtain rod, Towelbars - 1100 mm (42") minimum, total
- I. Special Equipment: Concealed solid wood backing for future grab bars at water closet and tub/shower
- J. Surfaces/Finishes
- 1) Floor: Resilient sheet flooring
  - 2) Base: Rubber
  - 3) Wainscot: None
  - 4) Walls: Painted moisture resistant gypsum wallboard, full-height solid surface panels at tub/shower or fiberglass tub surround

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5) Ceiling: **Painted exterior soffit gypsum wallboard**  
6) Window Treatment: **Obscure Glass (if applicable)**

K. Other: **None**

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: Vestibule
- B. Relationship to Other Areas: Direct Access to Entry Closet
- C. Spatial Requirements
- 1) Area: Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
1.2 sq. meters (13 sq. ft.), minimum, 1.5 sq. meters (16 sq. ft.) maximum  
1000 mm (3'-3"), length, minimum  
1200 mm (4'-0") depth, minimum  
2300 mm (7'-6")
  - 2) Minimum Ceiling Height:
- D. Environmental Characteristics
- 1) Acoustical: Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02: FIIC (Field Impact Isolation Class) - 57; FSTC (Field Sound Transmission Class) - 52
  - 2) Visual: None
  - 3) Aesthetic: None
- E. Building Systems
- 1) Electrical: Receptacle opposite door
  - 2) Lighting: Switched exterior entry light, switched ceiling fixture
  - 3) Data/Telecommunication: None
  - 4) Plumbing: None
  - 5) Heating: Hydronic Terminal Units
  - 6) Ventilation: None
- F. Storage: Coat storage, heated boots and outerwear
- G. Display: None
- H. Furniture & Equipment: Bench and (6 minimum) coat hooks
- I. Special Equipment: None
- J. Surfaces/Finishes
- 1) Floor: Ceramic tile or resilient sheet flooring
  - 2) Base: Ceramic tile or wood
  - 3) Wainscot: None
  - 4) Walls: Painted gypsum wallboard
  - 5) Ceiling: Painted gypsum wallboard
  - 6) Window Treatment: Horizontal blinds
- K. Other: None

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- |    |                               |  |
|----|-------------------------------|--|
| A. | Room Name:                    | <b>Entry Hall Closet</b>   |
| D. | Relationship to Other Areas:  | <b>Direct Access to Vestibule</b>  |
| E. | Spatial Requirements          |  |
|    | 2) Area:                      | <b>Per TI 801-02 Technical Instructions for Family Housing, Table 5-6<br/>1200 mm (4'-0") width, minimum</b> |
|    | 2) Minimum Ceiling Height:    | <b>2300 mm (7'-6")</b>   |
| D. | Environmental Characteristics |  |
|    | 1) Acoustical:                | <b>None</b>  |
|    | 2) Visual:                    | <b>None</b>  |
|    | 3) Aesthetic:                 | <b>None</b>  |
| E. | Building Systems              |  |
|    | 1) Electrical:                | <b>None</b>  |
|    | 2) Lighting:                  | <b>None</b>  |
|    | 3) Data/Telecommunication:    | <b>None</b>  |
|    | 4) Plumbing:                  | <b>None</b>  |
|    | 5) Heating:                   | <b>None</b>  |
|    | 6) Ventilation:               | <b>None</b>  |
| F. | Storage:                      | <b>305 mm (12") minimum deep Shelf with Clothes Rod</b>  |
| G. | Display:                      | <b>None</b>  |
| H. | Furniture & Equipment:        | <b>None</b>  |
| I. | Special Equipment:            | <b>None</b>  |
| J. | Surfaces/Finishes             |  |
|    | 1) Floor:                     | <b>Match adjacent flooring</b>   |
|    | 2) Base:                      | <b>Wood or rubber</b>  |
|    | 3) Wainscot:                  | <b>None</b>  |
|    | 4) Walls:                     | <b>Painted gypsum wallboard</b>  |
|    | 5) Ceiling:                   | <b>Painted gypsum wallboard</b>  |
|    | 6) Window Treatment:          | <b>None</b>  |
| K. | Other:                        | <b>None</b>  |

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: **Patio**
- B. Relationship to Other Areas: **Direct access to Public Area (Living, Dining, or Family Room)**
- C. Spatial Requirements  
 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-4  
13.6 sq. meters (144 sq. ft.), minimum  
3000 mm (10'-0") width, minimum**  
 2) Minimum Ceiling Height: **N/A**
- B. Environmental Characteristics  
 1) Acoustical: **None**  
 2) Visual: **None**  
 3) Aesthetic: **Relative to Yard Fencing**
- E. Building Systems  
 1) Electrical: **(2) duplex receptacles with metal w/p while in use covers**  
 2) Lighting: **Switched exterior patio light**  
 3) Data/Telecommunication: **None**  
 4) Plumbing: **None**  
 5) Heating: **None**  
 6) Ventilation: **None**
- F. Storage: **None**
- G. Display: **Insulated/thermally broken 6'-0" wide door unit; one fixed side, one swinging door**
- H. Furniture & Equipment: **None**
- I. Special Equipment: **None**
- J. Surfaces/Finishes  
 1) Floor: **Concrete with sealer**  
 2) Base: **None**  
 3) Wainscot: **None**  
 4) Walls: **None**  
 5) Ceiling: **None**  
 6) Window Treatment: **None**
- K. Other: **None**



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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: **Garage**
- B. Relationship to Other Areas: **Direct access to Kitchen, Half-Bath, Yard; ADA units require garage accessibility**
- C. Spatial Requirements
- 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-4  
21.6 sq. meters (240 sq. ft.), minimum  
3650 mm (12'-0"), width, minimum  
6100 mm (20'-0") depth, minimum**
  - 2) Minimum Ceiling Height: **2300 mm (7'-6")**
  - 3) Sub-Activity Areas: **Shop area, Bulk storage**
- D. Environmental Characteristics
- 1) Acoustical: **Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02:  
FSTC (Field Sound Transmission Class) - 52**
- E. Building Systems
- 1) Electrical: **Duplex GFCI receptacles with metal w/p while in use covers; (2) duplex GFCI receptacles @ 48" A.F.F. either side of car space; duplex receptacle and local switch for garage door opener**
  - 2) Lighting: **Switched fluorescent fixtures-mount fixtures aligned to rear of trunk on both sides of car and even with front wheels on both sides of car; Minimum illuminance 300 lux**
  - 3) Data/Telecommunication: **None**
  - 4) Plumbing: **Floor drain**
  - 5) Heating: **Hydronic terminal units or radiant Floor**
  - 6) Ventilation: **None, CO2 detector**
- F. Storage: **Bulk storage may be co-located; may utilize rafter space for storage; provide space for utility shelving**
- G. Display: **None**
- H. Furniture & Equipment: **None**
- I. Special Equipment: **Garage door opener with 2 remote controls**
- J. Surfaces/Finishes
- 1) Floor: **Concrete, sealed**
  - 2) Base: **None**
  - 3) Wainscot: **None**
  - 4) Walls: **Painted gypsum wallboard**
  - 5) Ceiling: **Painted gypsum wallboard**
  - 6) Window Treatment: **None**
- K. Other: **None**

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**AREA: CGO DWELLING UNIT – 3 Bedroom Type**

- A. Room Name: **Bulk Storage**
- B. Relationship to Other Areas: **Areas for interior and exterior storage must equal minimum combined area**
- C. Spatial Requirements
- 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-7  
Interior – 3.0 sq. meters (32 sq. ft.), minimum  
Exterior – 3.7 sq. meters (40 sq. ft.), minimum  
Combined – 7.9 sq. meters (85 sq. ft.), min.**
  - 2) Minimum Ceiling Height: **2000 mm (6'-6")**
  - 3) Sub-Activity Areas: **Garage, laundry, utility**
- D. Environmental Characteristics
- 1) Acoustical: **None**
  - 2) Visual: **None**
  - 3) Aesthetic: **None**
- E. Building Systems
- 1) Electrical: **Duplex receptacle**
  - 2) Lighting: **Switched enclosed incandescent fixture**
  - 3) Data/Telecommunication: **None**
  - 4) Plumbing: **None**
  - 5) Heating: **Hydronic terminal units or radiant floor**
  - 6) Ventilation: **None**
- F. Storage: **Utility room may be co-located; Clear depth 1200mm (4'-0") depth, minimum; space under stairs may be counted at ½ the area if space is at least 12mm (4'-0") high; Exterior access storage space must be lockable; (3) 305mm (12") deep shelves x 7300mm (24') minimum total shelving in each storage space**
- G. Display: **None**
- H. Furniture & Equipment: **None**
- I. Special Equipment: **None**
- J. Surfaces/Finishes
- 1) Floor: **Concrete, sealed (exterior); Resilient sheet flooring (interior)**
  - 2) Base: **None (exterior); Rubber (interior)**
  - 3) Wainscot: **None**
  - 4) Walls: **Painted gypsum wallboard**
  - 5) Ceiling: **Painted gypsum wallboard**
  - 6) Window Treatment: **None**
- K. Other: **None**

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**AREA: CGO DWELLING UNIT – 4 Bedroom Type**

- |    |                                   |  |
|----|-----------------------------------|--|
| A. | Room Name:                        | <b>4-BEDROOM UNIT REQUIREMENTS</b>   |
| B. | Relationship to Other Areas:      | <b>Fire resistance of party walls per</b><br><b>Mil Handbook 1008C, NFPA 101 and UBC:</b><br><b>1-Hour fire rated partition between units</b><br><b>2-Hour area separation wall separating pairs of units</b>  |
| C. | Spatial Requirements              |  |
|    | 1) Area:                          | <b>Per TI 801-02 Technical Instructions for</b><br><b>Family Housing, Table 5-1</b><br><b>135 sq. meters (1,450 sq. ft.) net, max.</b><br><b>+ 27.87 sq. meters (300 sq. ft) Arctic Bonus Area</b><br><b>*does not include Sub-Activity areas</b><br><b>*does not include access clearances required for</b><br><b>ADA-adaptable units</b>                                   |
|    | 2) Minimum Ceiling Height:        | <b>See room requirements</b>   |
|    | 3) Flexibility/Multiple Use Needs | <b>See room requirements; ADA-adaptable unit plans must facilitate retrofit for special needs tenants</b>  |
|    | 4) Sub-Activity Areas:            | <b>Utility and laundry rooms, bulk storage, mechanical space, stairs/landings, arctic entry, attic/basement, patio, garage, increases for accessibility standards</b>  |
|    | 5) Sub-Activity Relationships:    | <b>See room requirements</b>   |
| D. | Environmental Characteristics     |  |
|    | 1) Acoustical:                    | <b>Sound transmission standards between dwelling units summarized as follows (see Chapter 5 and Table 5-2 in TI 801-02):</b><br><b><u>FIIC (Field Impact Isolation Class)</u></b><br><b>Habitable areas – 65, Habitable wet areas - 57</b><br><b><u>FSTC (Field Sound Transmission Class)</u></b><br><b>Party walls – 52, Habitable areas – 52, Habitable wet areas - 52</b> |
|    | 2) Visual:                        | <b>Per Ft. Wainwright Installation Design Guide</b>  |
|    | 3) Aesthetic:                     | <b>Per Ft. Wainwright Installation Design Guide</b>  |
| E. | Building Systems                  |  |
|    | 1) Electrical:                    | <b>208Y/120V, 3-phase, 4-wire, 60Hz</b>  |
|    | 2) Lighting:                      | <b>See room requirements</b>   |
|    | 3) Data/Telecommunication:        | <b>See room requirements</b>   |
|    | 4) Plumbing:                      | <b>Exterior hose bib, front and back of unit</b>   |
|    | 5) Heating:                       | <b>Hydronic heat in all rooms with exterior walls</b>  |
|    | 6) Ventilation:                   | <b>Operable windows for ventilation</b>  |
| F. | Storage:                          | <b>See room requirements</b>   |
| G. | Display:                          | <b>See room requirements</b>   |
| H. | Furniture & Equipment:            | <b>See room requirements</b>   |
| I. | Special Equipment:                | <b>See room requirements</b>   |

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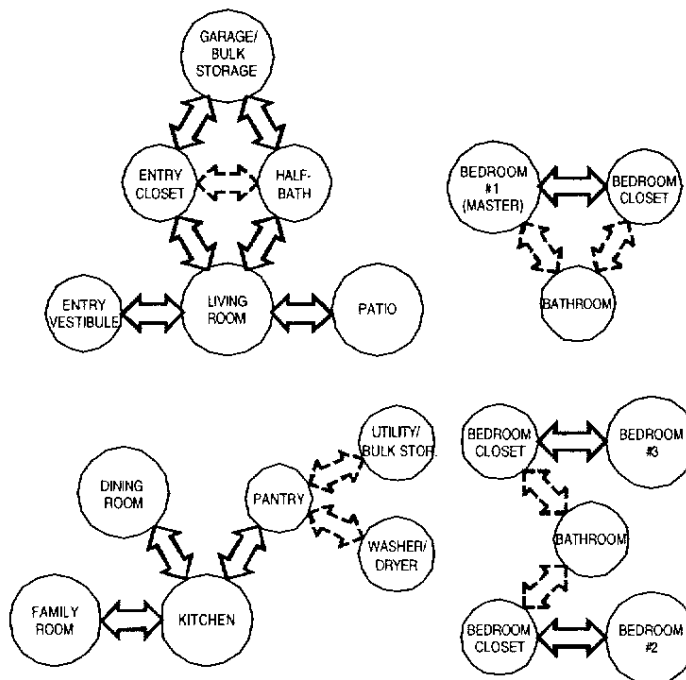
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J. Surfaces/Finishes

- 1) Floor: See room requirements
- 2) Base: See room requirements
- 3) Wainscot: See room requirements
- 4) Walls: See room requirements
- 5) Ceiling: See room requirements
- 6) Window Treatment: See room requirements

K. Parking Requirement: 1-Space in Garage, 2 Spaces outside of Unit w/ head-bolt heaters

L. Bubble Diagram:



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**AREA: CGO DWELLING UNIT – 4 Bedroom Type**

- A. Room Name: **Living Room**
- B. Relationship to Other Areas: **Immediate access to Entry, public spaces**
- D. Spatial Requirements
- 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
14 sq. meters (150 sq. ft.) net, min.\*  
3550 mm (11'-8") length, minimum  
3550 mm (11'-8") width, minimum  
\*exclusive of circulation; add 1000mm (3'-3") to the minimum dimension**
  - 2) Minimum Ceiling Height: **2300 mm (7'-6")**
- D. Environmental Characteristics
- 1) Acoustical: **Per Chapter 5 and Table 5-2 in TI 801-02: FIIIC (Field Impact Isolation Class) - 65; FSTC (Field Sound Transmission Class) - 52**
  - 2) Visual: **2-story space or high ceiling area**
  - 3) Aesthetic: **Feature window area, view to entry**
- E. Building Systems
- 1) Electrical: **Switched receptacle adjacent to couch; cable TV outlet**
  - 2) Lighting: **Separately switched lamp & ceiling fan combo -  
Minimum illuminance – 200 lux**
  - 3) Data/Telecommunication: **Quad phone/data outlet**
  - 4) Plumbing: **None**
  - 5) Heating: **Hydronic terminal units or radiant floor**
  - 6) Ventilation: **Ceiling fan, operable windows**
- F. Storage: **None**
- G. Display: **None**
- H. Furniture & Equipment: **None**
- I. Special Equipment: **None**
- J. Surfaces/Finishes
- 1) Floor: **Carpet over pad**
  - 2) Base: **Wood**
  - 3) Wainscot: **None**
  - 4) Walls: **Painted gypsum wallboard**
  - 5) Ceiling: **Painted gypsum wallboard**
  - 6) Window Treatment: **Horizontal blinds**
- K. Other: **None**

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**AREA: CGO DWELLING UNIT – 4 Bedroom Type**

- |    |                               |   |
|----|-------------------------------|---|
| A. | Room Name:                    | Dining Room   |
| B. | Relationship to Other Areas:  | Direct access to Kitchen  |
| C. | Spatial Requirements          |   |
|    | 1) Area:                      | Per TI 801-02 Technical Instructions for Family Housing, Table 5-3<br>10.2 sq. meters (110 sq. ft.) net, min.*<br>2900 mm (10'-6") length, minimum<br>2900 mm (10'-6") width, minimum<br>*exclusive of circulation; add 1000mm (3'-3") to the minimum dimension |
|    | 2) Minimum Ceiling Height:    | 2300 mm (7'-6")   |
| D. | Environmental Characteristics |   |
|    | 1) Acoustical:                | Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02:<br><u>FIIC (Field Impact Isolation Class) - 65</u><br><u>FSTC (Field Sound Transmission Class) - 52</u>   |
|    | 2) Visual:                    | None  |
|    | 3) Aesthetic:                 | None  |
| E. | Building Systems              |   |
|    | 1) Electrical:                | Receptacles per NEC   |
|    | 2) Lighting:                  | Overhead fixture, minimum illuminance – 200 lux   |
|    | 3) Data/Telecommunication:    | None  |
|    | 4) Plumbing:                  | None  |
|    | 5) Heating:                   | Hydronic terminal units or radiant floor  |
|    | 6) Ventilation:               | Operable windows  |
| F. | Storage:                      | None  |
| G. | Display:                      | None  |
| H. | Furniture & Equipment:        | None  |
| I. | Special Equipment:            | None  |
| J. | Surfaces/Finishes             |   |
|    | 1) Floor:                     | Resilient sheet flooring  |
|    | 2) Base:                      | Wood  |
|    | 3) Wainscot:                  | None  |
|    | 4) Walls:                     | Painted gypsum wallboard  |
|    | 5) Ceiling:                   | Painted gypsum wallboard  |
|    | 6) Window Treatment:          | Horizontal blinds   |
| K. | Other:                        | None  |

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**AREA: CGO DWELLING UNIT – 4 Bedroom Type**

- A. Room Name: **Family Room**
- B. Relationship to Other Areas: **Adjacent to and Contiguous with Kitchen**
- C. Spatial Requirements
- 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
8.4 sq. meters (90 sq. ft.) net, min.\*  
2900 mm (9'-6") length, minimum  
2900 mm (9'-6") width, minimum  
\*exclusive of circulation; add 1000mm (3'-3") to the minimum dimension**
- 2) Minimum Ceiling Height: **2300 mm (7'-6")**
- 3) Flexibility/Multiple Use Needs: **None**
- 4) Sub-Activity Areas: **Auxiliary Dining Area (if not part of Kitchen)**
- 5) Sub-Activity Relationships: **Direct access to Kitchen**
- D. Environmental Characteristics
- 1) Acoustical: **Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02:  
FIIIC (Field Impact Isolation Class) - 65  
FSTC (Field Sound Transmission Class) - 52**
- E. Building Systems
- 1) Electrical: **Switched receptacle adjacent to couch; TV outlet**
- 2) Lighting: **Combo ceiling fan/light fixture, minimum illuminance – 200 lux**
- 3) Data/Telecommunication: **Quad phone/data outlet**
- 4) Plumbing: **None**
- 5) Heating: **Hydronic terminal units or radiant floor**
- 6) Ventilation: **Operable windows, ceiling fan**
- F. Storage: **None**
- G. Display: **None**
- H. Furniture & Equipment: **Space for table (if not provided as part of Kitchen)**
- I. Special Equipment: **None**
- J. Surfaces/Finishes
- 1) Floor: **Resilient sheet flooring if auxiliary eating area, carpet/pad otherwise**
- 2) Base: **Wood**
- 3) Wainscot: **None**
- 4) Walls: **Painted gypsum wallboard**
- 5) Ceiling: **Painted gypsum wallboard**
- 6) Window Treatment: **Horizontal blinds**
- K. Other: **None**

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**AREA: CGO DWELLING UNIT – 4 Bedroom Type**

- A. Room Name: Kitchen
- B. Relationship to Other Areas: Adjacent to and contiguous with Family Room, Dining Room
- C. Spatial Requirements
- 1) Area: Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
6.0 sq. meters (64 sq. ft.) net, minimum\*  
2450 mm (8'-0") length, minimum  
2450 mm (8'-0") width, minimum  
\*1200 mm (4'-0") min. clearance required in front of, and between, cabinets  
\*adaptable units must anticipate UFAS required clearances
- 2) Minimum Ceiling Height: 2300 mm (7'-6")
- 3) Sub-Activity Areas: Auxiliary Dining Area (if not part of Family Room), change above dimensions to, and measure from face of cabinets to walls:  
6.7 sq. meters (8 sq. ft.) net, minimum  
2600 mm (8'-6") length, minimum  
2600 mm (8'-6") width, minimum
- 5) Sub-Activity Relationships: Direct access to Dining Room
- D. Environmental Characteristics
- 1) Acoustical: Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02: FIIIC (Field Impact Isolation Class) - 57; FSTC (Field Sound Transmission Class) - 52
- 2) Visual: Natural lighting
- 3) Aesthetic: Cleanable surfaces
- E. Building Systems
- 1) Electrical: Receptacles per NEC
- 2) Lighting: Minimum illuminance 300 lux in addition to task lighting shown below; Undercabinet lighting on 2 Switches - 750 lux; Sink lighting - 750 lux; Range Light in hood - 750 lux
- 3) Data/Telecommunication: Wall mount telephone receptacle
- 4) Plumbing: Double compartment stainless steel sink with single lever faucet, spray hose, garbage disposal; dishwasher; water to Refrigerator icemaker
- 5) Heating: Hydronic terminal units or radiant floor
- 6) Ventilation: Ducted range hood with fan and light; operable windows
- F. Storage: Per TI 801-02 Table 5-5  
Wall Cabinet - 2.8 sq. meters (30 sq. ft.) total shelf area  
Base Cabinet - 3.8 sq. meters (40 sq. ft.) total shelf area  
Pantry - 1.5 sq. meters (20 sq. ft.) total shelf area  
Drawers - 1.7 sq. meters (18 sq. ft.) flat area  
Countertop - 1.5 sq. meters (16 sq. ft.) flat area  
Space for Microwave  
Refrigerator/Freezer - 0.5 sq. meters (6 sq. ft.)\*  
900 mm (3'-0") length, min., 600 mm (2'-0") width, min.



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**\*Ref./Freezer area is not part of totals above**

- G. Display: **None**
- H. Furniture & Equipment: **Dishwasher, CFE (with water booster heater to 60 deg. C)  
Garbage Disposal, CFE  
Refrigerator/Freezer, GFE  
AM #5...Range and Ventilation Hood, CFE...AM #5  
Microwave Oven by Tenant**
- I. Special Equipment: **None**
- J. Surfaces/Finishes
- 1) Floor: **Resilient sheet flooring**
  - 2) Base: **Wood with ¼-round moulding**
  - 3) Wainscot: **None**
  - 4) Walls: **Painted gypsum wallboard, tile behind wet areas**
  - 5) Ceiling: **Painted gypsum wallboard**
  - 6) Window Treatment: **Horizontal blinds**
- K. Other: **Housing Office preferred configuration is "breakfast bar" auxiliary eating area**

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**AREA: CGO DWELLING UNIT – 4 Bedroom Type**

- A. Room Name: Washer/Dryer
- B. Relationship to Other Areas: May be part of Utility Room or Bulk Storage
- C. Spatial Requirements
- 1) Area: Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
1.6 sq. meters (54 sq. ft.) net, min., 2.8 sq. meters (30 sq. ft) max.\*  
1800 (6'-0") length, minimum  
900 (3'-0") width, minimum  
\*exclusive of circulation if shared space
  - 2) Minimum Ceiling Height: 2300 mm (7'-6") minimum
  - 3) Flexibility/Multiple Use Needs: Utility Area, Bulk Storage (optional)
- D. Environmental Characteristics
- 1) Acoustical: Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02: FIIC (Field Impact Isolation Class) - 57; FSTC (Field Sound Transmission Class) - 52
- E. Building Systems
- 1) Electrical: Special receptacles as required for laundry equipment; convenience receptacles
  - 2) Lighting: Ceiling mounted lighting fixture, compact fluorescent, high CRI
  - 3) Data/Telecommunications: None
  - 4) Plumbing: Single lever hot/cold water supply hose valves in recessed box, floor drain
  - 5) Heating: None
  - 6) Ventilation: Dryer exhaust duct to exterior wall hood directed away from eaves or overhangs
- F. Storage: Shelving or cabinet above appliances
- G. Display: None
- H. Furniture & Equipment: Washer and Dryer, GFE
- I. Special Equipment: None
- J. Surfaces/Finishes
- 1) Floor: Resilient sheet flooring
  - 2) Base: Wood or rubber base
  - 3) Wainscot: None
  - 4) Walls: Painted moisture-resistant gypsum wallboard,
  - 5) Ceiling: Painted gypsum wallboard
  - 6) Window Treatment: None
- K. Other: None

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**AREA: CGO DWELLING UNIT – 4 Bedroom Type**

- |    |                               |   |
|----|-------------------------------|---|
| A. | Room Name:                    | <b>Bedroom #1 (Master)</b>  |
| B. | Relationship to Other Areas:  | <b>Direct access to Bathroom, Quiet Area</b>  |
| C. | Spatial Requirements          |   |
|    | 1) Area:                      | <b>Per TI 801-02 Technical Instructions for Family Housing, Table 5-3<br/>14.0 sq. meters (150 sq. ft.) net, minimum<br/>3550 (11'-8") length, minimum<br/>3550 (11'-8") width, minimum</b> |
|    | 2) Minimum Ceiling Height:    | <b>2300 mm (7'-6")</b>  |
| D. | Environmental Characteristics |   |
|    | 1) Acoustical:                | <b>Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02: <u>FIIIC (Field Impact Isolation Class)</u> - 65; <u>FSTC (Field Sound Transmission Class)</u> - 52</b>    |
| E. | Building Systems              |   |
|    | 1) Electrical:                | <b>Switched (3-way) receptacle adjacent to bed</b>  |
|    | 2) Lighting:                  | <b>Compact Fluorescent reading lights adjacent to bed; Cable TV outlet opposite bed; minimum illuminance – 200 lux; Combo ceiling fan/light fixture on separate switches</b>                |
|    | 3) Data/Telecommunication:    | <b>Quad Telecomm/data outlets, (1) adjacent to bed, (1) opposite bed</b>  |
|    | 4) Plumbing:                  | <b>None</b>   |
|    | 5) Heating:                   | <b>Hydronic terminal units or radiant floor</b>   |
|    | 6) Ventilation:               | <b>Operable windows, Ceiling fan</b>  |
| F. | Storage:                      | <b>None</b>   |
| G. | Display:                      | <b>None</b>   |
| H. | Furniture & Equipment:        | <b>None</b>   |
| I. | Special Equipment:            | <b>None</b>   |
| J. | Surfaces/Finishes             |   |
|    | 1) Floor:                     | <b>Carpet with Pad</b>  |
|    | 2) Base:                      | <b>Wood</b>   |
|    | 3) Wainscot:                  | <b>None</b>   |
|    | 4) Walls:                     | <b>Painted gypsum wallboard</b>   |
|    | 5) Ceiling:                   | <b>Painted gypsum wallboard</b>   |
|    | 6) Window Treatment:          | <b>Horizontal blinds</b>  |
| K. | Other:                        | <b>None</b>   |

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**AREA: CGO DWELLING UNIT – 4 Bedroom Type**

- |    |                               |  |
|----|-------------------------------|--|
| A. | Room Name:                    | <b>Bedroom #1 (Master) Closet</b>  |
| B. | Relationship to Other Areas:  | <b>Direct Access to Bedroom #1, walk-in configuration preferred</b>  |
| C. | Spatial Requirements          |  |
|    | 1) Area:                      | <b>Per TI 801-02 Technical Instructions for Family Housing, Table 5-6<br/>1800 mm (6'-0") width, minimum</b> |
|    | 2) Minimum Ceiling Height:    | <b>2300 mm (7'-6")</b>   |
| D. | Environmental Characteristics |  |
|    | 1) Acoustical:                | <b>None</b>  |
|    | 2) Visual:                    | <b>None</b>  |
|    | 3) Aesthetic:                 | <b>None</b>  |
| E. | Building Systems              |  |
|    | 1) Electrical:                | <b>None</b>  |
|    | 2) Lighting:                  | <b>Switched closet compact fluorescent fixture, high CRI</b>   |
|    | 3) Telecommunication          | <b>None</b>  |
|    | 4) Plumbing                   | <b>None</b>  |
|    | 5) Heating:                   | <b>None</b>  |
|    | 6) Ventilation:               | <b>None</b>  |
| F. | Storage:                      | <b>305 mm (12") minimum deep Shelf with Clothes Rod, intermediate supports to support required loads</b>     |
| G. | Display:                      | <b>None</b>  |
| H. | Furniture & Equipment:        | <b>None</b>  |
| I. | Special Equipment:            | <b>None</b>  |
| J. | Surfaces/Finishes             |  |
|    | 1) Floor:                     | <b>Carpet</b>  |
|    | 2) Base:                      | <b>Wood</b>  |
|    | 3) Wainscot:                  | <b>None</b>  |
|    | 4) Walls:                     | <b>Painted gypsum wallboard</b>  |
|    | 5) Ceiling:                   | <b>Painted gypsum wallboard</b>  |
|    | 6) Window Treatment:          | <b>None</b>  |
| K. | Other:                        | <b>None</b>  |

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**AREA: CGO DWELLING UNIT – 4 Bedroom Type**

- |    |                               |   |
|----|-------------------------------|---|
| A. | Room Name:                    | Bedroom #2  |
| B. | Relationship to Other Areas:  | Direct access to Quiet Area   |
| C. | Spatial Requirements          |   |
|    | 1) Area:                      | Per TI 801-02 Technical Instructions for Family Housing, Table 5-3<br>11.1 sq. meters (120 sq. ft.) net, minimum<br>3000 (10'-0") length, minimum<br>3000 (10'-0") width, minimum |
|    | 2) Minimum Ceiling Height:    | 2300 mm (7'-6")   |
| D. | Environmental Characteristics |   |
|    | 1) Acoustical:                | Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02: <u>FIIIC (Field Impact Isolation Class) - 65; FSTC (Field Sound Transmission Class) - 52</u>        |
|    | 2) Visual:                    | None  |
|    | 3) Aesthetic:                 | None  |
| E. | Building Systems              |   |
|    | 1) Electrical:                | Switched (3-way) receptacle adjacent to bed;<br>compact fluorescent reading light adjacent to bed; cable TV outlet opposite bed   |
|    | 2) Lighting:                  | Combo ceiling fan/light fixture on separate switches;<br>Minimum illuminance 200 lux.   |
|    | 3) Data/Telecommunication:    | Telecomm/data outlets, (1) adjacent to bed, (1) opposite bed  |
|    | 4) Plumbing                   | None  |
|    | 5) Heating:                   | Hydronic terminal units or radiant floor  |
|    | 6) Ventilation:               | Operable windows, ceiling fan   |
| F. | Storage:                      | None  |
| G. | Display:                      | None  |
| H. | Furniture & Equipment:        | None  |
| I. | Special Equipment:            | None  |
| J. | Surfaces/Finishes             |   |
|    | 1) Floor:                     | Carpet with Pad   |
|    | 2) Base:                      | Wood  |
|    | 3) Wainscot:                  | None  |
|    | 4) Walls:                     | Painted gypsum wallboard  |
|    | 5) Ceiling:                   | Painted gypsum wallboard  |
|    | 6) Window Treatment:          | Horizontal blinds   |
| K. | Other:                        | None  |

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**AREA: CGO DWELLING UNIT – 4 Bedroom Type**

- |    |                               |  |
|----|-------------------------------|--|
| A. | Room Name:                    | <b>Bedroom #2 Closet</b>   |
| B. | Relationship to Other Areas:  | <b>Direct Access to Bedroom #2</b>   |
| C. | Spatial Requirements          |  |
|    | 1) Area:                      | <b>Per TI 801-02 Technical Instructions for Family Housing, Table 5-6<br/>1200 mm (4'-0") width, minimum<br/>2300 mm (7'-6")</b> |
|    | 2) Minimum Ceiling Height:    | <b>2300 mm (7'-6")</b>   |
| D. | Environmental Characteristics |  |
|    | 1) Acoustical:                | <b>None</b>  |
|    | 2) Visual:                    | <b>None</b>  |
|    | 3) Aesthetic:                 | <b>None</b>  |
| E. | Building Systems              |  |
|    | 1) Electrical:                | <b>None</b>  |
|    | 2) Lighting:                  | <b>Switched closet compact fluorescent fixture, high CRI</b>   |
|    | 3) Data/Telecommunication:    | <b>None</b>  |
|    | 4) Plumbing:                  | <b>None</b>  |
|    | 5) Heating:                   | <b>None</b>  |
|    | 6) Ventilation:               | <b>None</b>  |
| F. | Storage:                      | <b>305 mm (12") minimum deep Shelf with Clothes Rod, intermediate supports to support required loads</b>                         |
| G. | Display:                      | <b>None</b>  |
| H. | Furniture & Equipment:        | <b>None</b>  |
| I. | Special Equipment:            | <b>None</b>  |
| J. | Surfaces/Finishes             |  |
|    | 1) Floor:                     | <b>Carpet</b>  |
|    | 2) Base:                      | <b>Wood</b>  |
|    | 3) Wainscot:                  | <b>None</b>  |
|    | 4) Walls:                     | <b>Painted gypsum wallboard</b>  |
|    | 5) Ceiling:                   | <b>Painted gypsum wallboard</b>  |
|    | 6) Window Treatment:          | <b>None</b>  |
| K. | Other:                        | <b>None</b>  |

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**AREA: CGO DWELLING UNIT – 4 Bedroom Type**

- A. Room Name: **Bedroom #3**
- B. Relationship to Other Areas: **Direct access to Quiet Area**
- C. Spatial Requirements
- 1) Area: **Per TI 801-02 Technical Instructions for Family Housing, Table 5-3  
9.0 sq. meters (100 sq. ft.) net, minimum  
3000 (10'-0") length, minimum  
3000 (10'-0") width, minimum**
  - 2) Minimum Ceiling Height: **2300 mm (7'-6")**
- D. Environmental Characteristics
- 1) Acoustical: **Where adjacent to neighboring unit, Per Chapter 5 and Table 5-2 in TI 801-02: FILC (Field Impact Isolation Class) - 65; FSTC (Field Sound Transmission Class) - 52**
  - 2) Visual:
  - 3) Aesthetic:
- E. Building Systems
- 1) Electrical: **Switched (3-way) receptacle adjacent to bed; compact fluorescent reading light adjacent to bed; cable TV outlet opposite bed**
  - 2) Lighting: **Combo ceiling fan/light fixture; minimum illuminance 200 lux.**
  - 3) Data/Telecommunication: **Telecomm/data outlets, (1) adjacent to bed, (1) opposite bed**
  - 4) Plumbing: **None**
  - 5) Heating: **Hydronic terminal units or radiant floor**
  - 6) Ventilation: **Operable windows, ceiling fan**
- F. Storage: **None**
- G. Display: **None**
- H. Furniture & Equipment: **None**
- I. Special Equipment: **None**
- J. Surfaces/Finishes
- 1) Floor: **Carpet with Pad**
  - 2) Base: **Wood**
  - 3) Wainscot: **None**
  - 4) Walls: **Painted gypsum wallboard**
  - 5) Ceiling: **Painted gypsum wallboard**
  - 6) Window Treatment: **Horizontal blinds**
- K. Other: **None**

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**AREA: CGO DWELLING UNIT – 4 Bedroom Type**

- |    |                               |  |
|----|-------------------------------|--|
| A. | Room Name:                    | <b>Bedroom #3 Closet</b>   |
| B. | Relationship to Other Areas:  | <b>Direct Access to Bedroom #3</b>   |
| C. | Spatial Requirements          |  |
|    | 1) Area:                      | <b>Per TI 801-02 Technical Instructions for Family Housing, Table 5-6<br/>1200 mm (4'-0") width, minimum</b> |
|    | 2) Minimum Ceiling Height:    | <b>2300 mm (7'-6")</b>   |
| D. | Environmental Characteristics |  |
|    | 1) Acoustical:                | <b>None</b>  |
|    | 2) Visual:                    | <b>None</b>  |
|    | 3) Aesthetic:                 | <b>None</b>  |
| E. | Building Systems              |  |
|    | 1) Electrical:                | <b>None</b>  |
|    | 2) Lighting:                  | <b>Compact fluorescent ceiling fixture, High CRI</b>   |
|    | 3) Data/Telecommunication:    | <b>None</b>  |
|    | 4) Plumbing:                  | <b>None</b>  |
|    | 5) Heating:                   | <b>None</b>  |
|    | 6) Ventilation:               | <b>None</b>  |
| F. | Storage:                      | <b>305 mm (12") minimum deep Shelf with Clothes Rod, intermediate supports to support required loads</b>     |
| G. | Display:                      | <b>None</b>  |
| H. | Furniture & Equipment:        | <b>None</b>  |
| I. | Special Equipment:            | <b>None</b>  |
| J. | Surfaces/Finishes             |  |
|    | 1) Floor:                     | <b>Carpet</b>  |
|    | 2) Base:                      | <b>Wood</b>  |
|    | 3) Wainscot:                  | <b>None</b>  |
|    | 4) Walls:                     | <b>Painted gypsum wallboard</b>  |
|    | 5) Ceiling:                   | <b>Painted gypsum wallboard</b>  |
|    | 6) Window Treatment:          | <b>None</b>  |
| k. | Other:                        | <b>None</b>  |